

REMARKS

Overview of the Office Action

Claims 1-6, 9-10, 12-14, and 45-50 have been rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,834,036 to Shiono et al. (“Shiono”).

Claims 7 and 8 have been rejected under 35 U.S.C. §103(a) as unpatentable over Shiono in view of U.S. Patent No. 6,545,823 to Kitahara (“Kitahara”).

Status of the claims

Claim 1 has been amended.

Claims 2-10, 12-13, 45-50, and 99 have been canceled.

Claims 11, 15-44, 51-98, and 100 have been withdrawn.

Claims 101-123 have been newly added.

Claims 1, 14, and 101-123 are now pending.

Newly added claims 101-123

Claims 101-123 have been newly added. No new matter has been introduced.

Support for the newly added claim 112 can be found at least on page 118, lines 5-8, in original claims 2 and 60, and in Figs. 5 and 19 of the originally-filed specification.

Support for the newly added claims 101 and 113 can be found at least on page 76, line 12 of the originally-filed specification.

Support for the newly added claims 102, 103, 114, and 115 can be found at least in Fig. 19 of the originally-filed specification.

Support for the newly added claims 104 and 116 can be found at least on page 131, line

21 to page 132, line 10 of the originally-filed specification.

Support for the newly added claims 105 and 117 can be found at least on page 113, line 21 to page 114, line 4 of the originally-filed specification.

Support for the newly added claims 106 and 118 can be found at least on page 113, line 21 to page 114, line 4 and page 73, lines 12-22 of the originally-filed specification.

Support for the newly added claims 107 and 119 can be found at least on page 112, lines 14-18 of the originally-filed specification.

Support for the newly added claims 108 and 120 can be found at least on page 123, lines 5-8 of the originally-filed specification.

Support for the newly added claims 109 and 121 can be found at least on page 126, line 21 to page 127, line 10 of the originally-filed specification.

Support for the newly added claims 110 and 122 can be found at least on page 133, lines 3-6 of the originally-filed specification.

Support for the newly added claims 111 and 123 can be found at least on page 139, lines 6-10 of the originally-filed specification.

Summary of subject matter disclosed in the specification

The following descriptive details are based on the specification. They are provided only for the convenience of the Examiner as part of the discussion presented herein, and are not intended to argue limitations which are unclaimed.

Disclosed is an optical pickup apparatus that includes first, second, and third light sources that emit light fluxes of wavelength λ_1 , λ_2 , and λ_3 for conducting recording and/or reproducing information for first, second, and third optical information recording mediums having respective

protective substrates of thickness t_1 , t_2 , and t_3 . The optical pickup apparatus further includes a diffractive optical element located on a common optical path for the first, second, and third light sources. A converged-light spot is formed on the first optical information recording medium with m -th order diffracted-light ray of the wavelength λ_1 , on the second optical information recording medium with n -th order diffracted-light ray of the wavelength λ_2 , and on the third optical information recording medium with k -th order diffracted-light ray of the wavelength λ_3 and is generated by the diffractive optical element respectively, wherein one of m , n , and k is different from one of other two numbers.

Descriptive summary of Shiono

Shiono discloses an optical head with high light utilization efficiency that includes a diffractive optical element and a light source emitting beams with a plurality of wavelengths that can read plural types of information recording media. A beam emitted from a light source selectively emitting a beam with a first wavelength and a beam with a second wavelength that is approximately twice as long as the first wavelength is collimated into a parallel beam by a diffraction collimator lens, is bent by a mirror for bending an optical path, and then is focused by a diffraction objective lens on an information recording medium. Outgoing light from these diffractive lenses is substantially a second-order diffraction light with respect to the beam with the first wavelength and is substantially a first-order diffraction light with respect to the beam with the second wavelength.

Claims 1-6, 9-10, 12-14, and 45-50 are allowable over Shiono under 35 U.S.C. §102(e)

The Office Action states that Shiono teaches all of Applicants' recited elements.

Independent claim 1 has been amended to point out more clearly the subject matter that Applicants regard as the invention. Specifically, independent claim 1 has been amended to recite, in part, an optical pickup apparatus, wherein the objective optical element comprises a first diffractive structure, wherein a converged-light spot is formed on the first optical information recording medium with m-th order (m is a natural number) diffracted-light ray of the wavelength λ_1 generated by the first diffractive structure, a converged-light spot is formed on the second optical information recording medium with n-th order (n is a natural number) diffracted-light ray of the wavelength λ_2 generated by the first diffractive structure, and a converged-light spot is formed on the third optical information recording medium with k-th order (k is a natural number) diffracted-light ray of the wavelength λ_3 generated by the first diffractive structure, and wherein one of m, n and k is different from one of other two numbers, and wherein the light flux of the wavelength λ_3 which has passed an area of the objective optical element which is out of an area within NA3 becomes a flare, NA3 being a numerical aperture for the converged light spot formed on the third optical information recording medium with the light flux of the wavelength λ_3 . Support for the claim amendments can be found at least on page 118, lines 5-8, in original claims 2 and 60, and in Figs. 5 and 19 of the originally-filed specification.

Shino fails to teach or suggest an optical pickup apparatus wherein the light flux of the wavelength λ_3 which has passed an area of the objective optical element which is out of an area within NA3 becomes a flare, NA3 being a numerical aperture for the converged light spot formed on the third optical information recording medium with the light flux of the wavelength λ_3 .

Instead, Shiono discloses “An optical head with high light utilization efficiency. . .”
“Outgoing light from these diffractive lenses is substantially a second-order diffraction light with

respect to the beam with the first wavelength and is substantially a first-order diffraction with respect to the beam with the second wavelength" (see the abstract of Shiono). However, Shiono fails to teach or suggest anything regarding a "flare". Therefore, Shiono does not teach or suggest that "the light flux of the wavelength λ_3 which has passed an area of the objective optical element which is out of an area within NA 3 becomes a flare," as recited in Applicants' amended independent claim 1. Accordingly, Shiono fails to teach or suggest the invention recited in Applicants' amended independent claim 1.

In view of the foregoing, Shiono does not teach or suggest the subject matter recited in Applicants' amended independent claim 1. Accordingly, claim 1 is patentable thereover under 35 U.S.C. §102(e).

Newly added independent claim 112 recites limitations similar to independent claim 1 and is therefore deemed to be patentably distinct over Shiono for reasons discussed above with respect to independent claim 1.

Dependent claims

Claims 2-6, 9-10, 12-13, and 45-50 have been canceled. Claims 14, 101-111, and 113-123, which depend directly or indirectly from independent claims 1 and 112, incorporate all of the limitations of the respective independent claim and are therefore deemed to be patentably distinct over Shiono for at least those reasons discussed above with respect to independent claims 1 and 112.

Claims 7 and 8 have been rejected under 35 U.S.C. §103(a)

Claims 7 and 8 have been canceled.


Conclusion

In view of the foregoing, reconsideration and withdrawal of all rejections, and allowance of all pending claims is respectfully solicited.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,

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